

# SGS

## Condensing High Efficiency Gas-Solar Water Heater

**SGS - 28/30/50/60/80/100**



Fully room sealed condensing high efficiency gas-solar water heater (95 % gross) • Maximum solar contribution through fully integrated intelligent solar controller • 1 control and display unit for the complete installation • Extra solar contribution possible up to 40 % compared to standard solar systems • Suitable in combination with storage tanks up to 3000 liters • Flexible flue options (maximum length 115m) • Thermocontrol for easy flexible control / fault diagnosis • Programmable for legionella purge cycle • All models suitable for natural or LP gas • Meets latest EPC standards: SGS 28-60 : 0,902 • Scale formation is reduced through the improved design and location of the heat exchanger • Very easy maintenance and installation • SGS 80 - SGS 100 standard applied with powered anodes • Remote control connection • Voltage-free contact for general fault indication • Unvented kits are optional

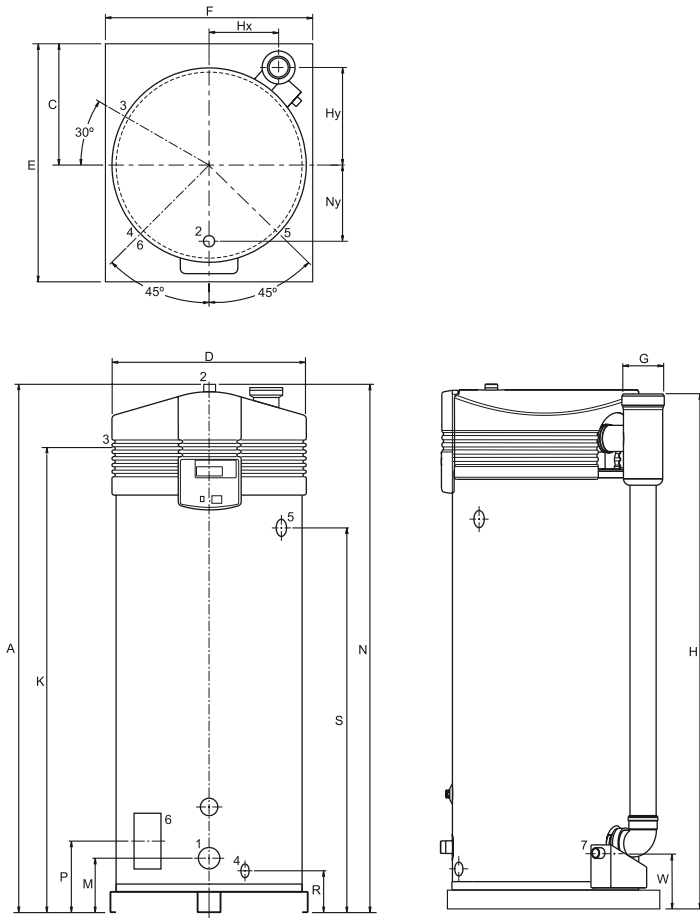
# Technical specifications

		SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100
<b>Gas data natural gas 2H (G20)</b>							
Input*	kW	32.1	34.5	52.6	63.2	86.6	105.5
Output	kW	30.5	32.7	48.8	59.6	81.9	99.8
Inlet pressure	mbar	20	20	20	20	20	20
Burner pressure	mbar	8.5	8.5	8.5	11.5	6.0	6.0
Gas consumption **	m <sup>3</sup> /h	3.1	3.3	5.0	6.0	8.3	10.1
Diameter injector	mm	4.90	5.10	7.00	7.10	6.30	6.80
Max. flue gas temperature	°C	70	50	75	75	50	50
Flue gas discharge	kg/h	56.8	61.1	85.4	101.4	141.9	164.3
<b>Gas data butane gas 3+ G30</b>							
Input*	kW	30.7	32.8	50.6	59.4	-	-
Output	kW	29.8	31.8	48.1	56.9	-	-
Inlet pressure	mbar	30	30	30	30	-	-
Burner pressure	mbar	-	-	-	-	-	-
Gas consumption **	kg/h	2.2	2.4	3.7	4.3	-	-
Diameter injector	mm	2.50	2.60	3.40	3.80	-	-
Max. flue gas temperature	°C	70	50	75	75	-	-
Flue gas discharge	kg/h	60.0	62.2	86.0	101.9	-	-
<b>Gas data propane gas 3+ G31</b>							
Input*	kW	29.0	30.9	50.3	59.1	84.8***	103.3***
Output	kW	28.1	29.8	47.7	56.9	81.9***	99.8***
Inlet pressure	mbar	37	37	37	37	30***	30***
Burner pressure	mbar	-	-	-	-	13.0***	13.0***
Gas consumption **	kg/h	2.1	2.2	3.6	4.2	6.1***	7.4***
Diameter injector	mm	2.50	2.60	3.40	3.80	4.70***	5.10***
Max. flue gas temperature	°C	70	50	75	75	50***	50***
Flue gas discharge	kg/h	54.3	56.5	85.1	101.0	142.1***	176.4***
<b>Draw-off capacity</b>							
Storage capacity	l	217	368	368	368	460	460
Max. temperature setting	°C	80	80	80	80	80	80
<b>T<sub>cold</sub> = 10°C / T<sub>set</sub> = 65°C</b>							
30 min ΔT=44°C	l	457	642	784	897	1139	1296
60 min ΔT=44°C	l	755	961	1261	1461	1939	2270
90 min ΔT=44°C	l	1053	1280	1738	2043	2737	3245
120 min ΔT=44°C	l	1350	1599	2215	2625	3540	4220
Continuous ΔT=44°C	l/h	595	638	954	1164	1601	1950
Heating-up time ΔT=44°C	min	22	35	23	19	17	14
30 min ΔT=50°C	l	402	565	690	773	1002	1140
60 min ΔT=50°C	l	664	846	1110	1286	1706	1998
90 min ΔT=50°C	l	926	1126	1530	1798	2411	2856
120 min ΔT=50°C	l	1188	1407	1950	2310	3115	3714
Continuous ΔT=50°C	l/h	524	562	840	1025	1409	1716
Heating-up time ΔT=50°C	min	25	39	26	22	20	16
30 min ΔT=55°C	l	366	513	627	703	911	1036
60 min ΔT=55°C	l	604	769	1009	1169	1551	1816
90 min ΔT=55°C	l	842	1024	1391	1634	2191	2596
120 min ΔT=55°C	l	1080	1279	1772	2100	2832	3376
Continuous ΔT=55°C	l/h	476	511	763	932	1281	1560
Heating-up time ΔT=55°C	min	27	43	29	24	22	18
<b>Electrical data</b>							
Power consumption	W	275	275	275	275	600	690
Power supply	VAC/Hz	230(-15% / +10 % VAC)					
<b>General</b>							
Fan rotational speed at ignition	r.p.m.	4500	4500	4500	4500	2790	3120
Working speed fan	r.p.m.	5000	5400	6000	6660	5100	5700
Pressure differential	Pa	635/605	855/825	885/855	1085/1055	1005/975	1145/1115
Diameter of air restrictor	mm	23	23	28	29	36	38
Anodes	-	4	4	4	4	2-electric	2-electric
Maximum working pressure	bar	8					
<b>Shipping data</b>							
Empty weight	kg	177	214	214	214	480	480
Max. weight	kg	394	582	582	582	940	940
Weight incl. packaging	kg	197	234	234	234	491	491
Width packaging	mm	870	870	870	870	920	920
Height packaging	mm	1550	2080	2080	2080	2060	2060
Depth packaging	mm	950	950	950	950	1020	1020

\*\*\* 3p (G31)

\* Gas data on gross value  
\*\* Gas consumption at 15°C en 1013,25 mbar

# Dimensions SGS 28-60



	SGS 28	SGS 30	SGS 50	SGS 60
A	1485	2005	2005	2005
C	490	490	490	490
D	705	705	705	705
E	925	925	925	925
F	850	850	850	850
G	80/125	100/150	100/150	100/150
H	1460	2000	2000	2000
Hx	265	265	265	265
Hy	375	375	375	375
K	1365	1895	1895	1895
M	265	255	255	255
N	1485	2005	2005	2005
Ny	205	205	205	205
P	265	270	270	270
R	180	170	170	170
S	995	1505	1505	1505
W	220	240	240	240

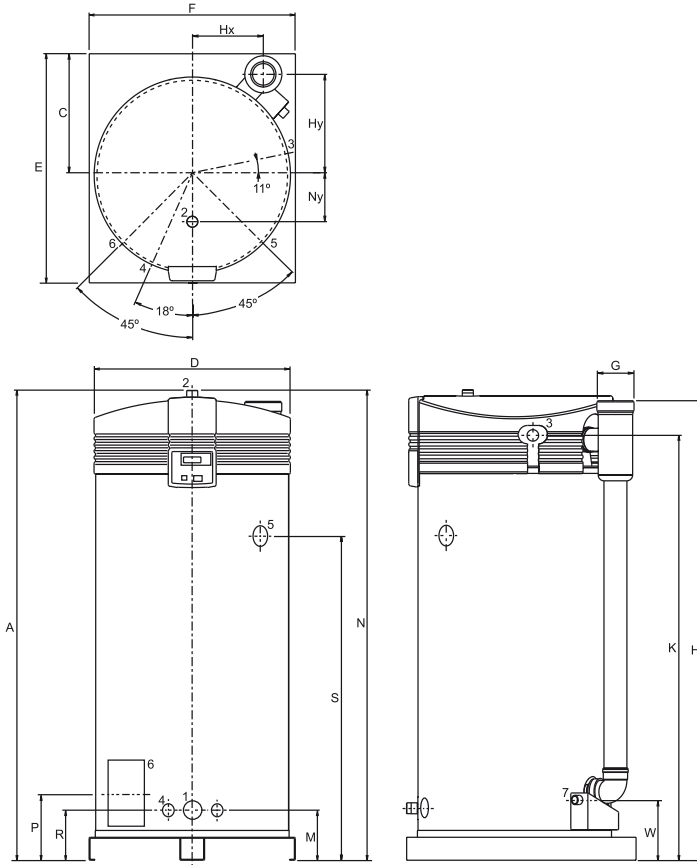
  

1	Cold water connection	R1 <sup>1</sup> / <sub>2</sub>
2	Hot water connection	R1 <sup>1</sup> / <sub>2</sub>
3	Gas valve connection	Rp <sup>3</sup> / <sub>4</sub>
4	Drain valve connection	<sup>3</sup> / <sub>4</sub>
5	Temperature and pressure valve	1 / 11.5 NPT
6	Inspection flange	95x70
7	Condensate drain	Ø40 (SGS 28) Rp1 (SGS 30-60)

On all SGS units 3 year warranty is applicable on the tank and 1 year on all parts.



# Dimensions SGS 80-100



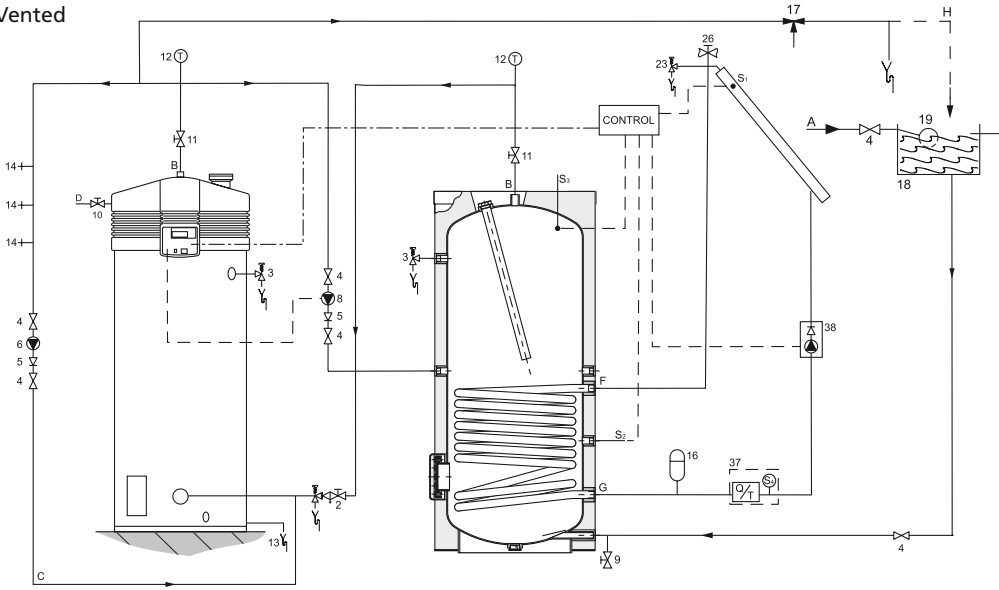
	SGS 80	SGS 100
A	2060	2060
C	530	530
D	850	850
E	1000	1000
F	900	900
G	130/200	130/200
H	2015	2015
Hx	310	310
Hy	440	440
K	1855	1855
M	225	225
N	2060	2060
Ny	205	205
P	290	290
R	225	225
S	1425	1425
W	240	240
1	Cold water connection	R1 <sup>1</sup> / <sub>2</sub>
2	Hot water connection	R1 <sup>1</sup> / <sub>2</sub>
3	Gas valve connection	Rp <sup>3</sup> / <sub>4</sub>
4	Drain valve connection	<sup>3</sup> / <sub>4</sub>
5	Temperature and pressure valve	1 / 11.5 NPT
6	Inspection flange	95x70
7	Condensate drain	Rp1

On all SGS units 3 year warranty is applicable on the tank and 1 year on all parts.



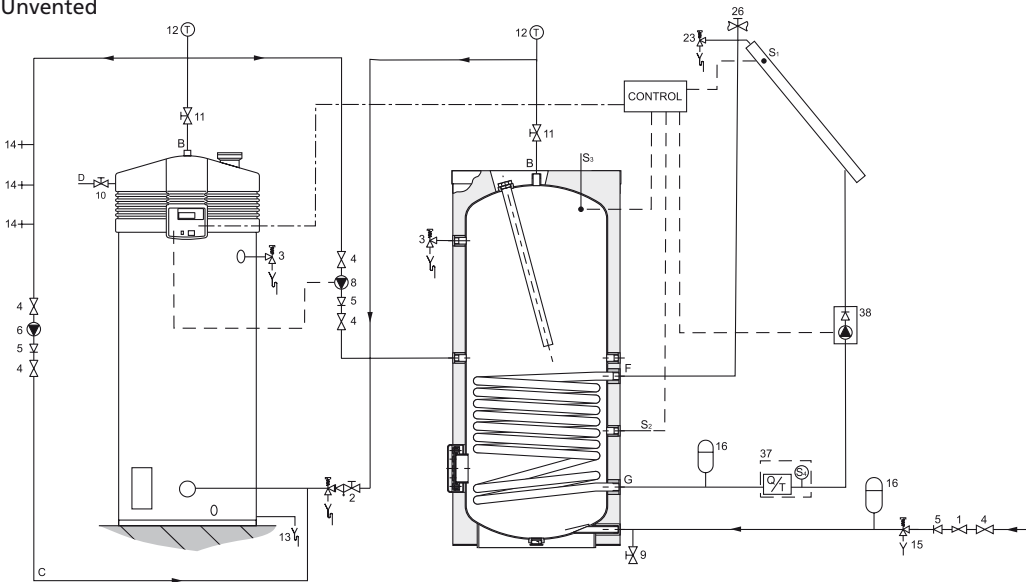
# Installation diagrams

Vented



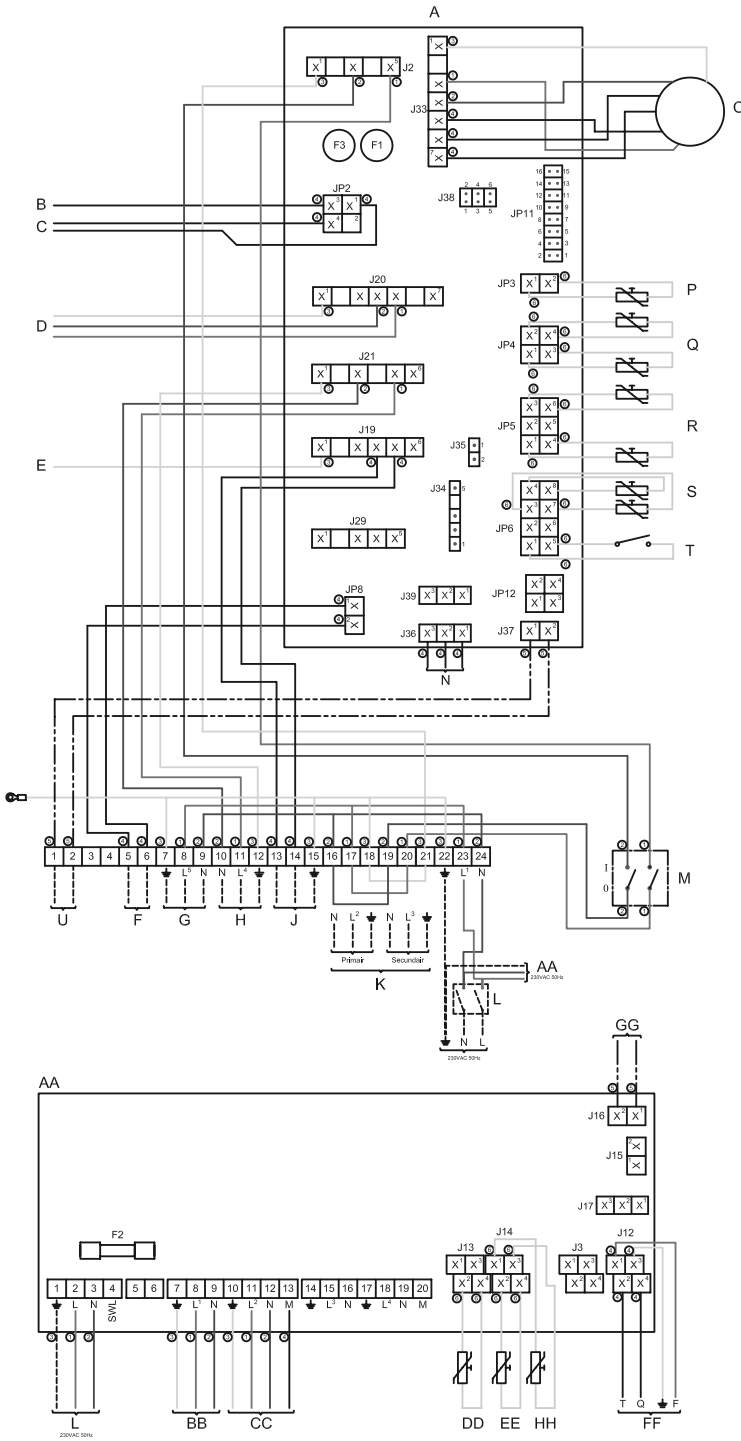
- 1 Pressure reduce valve
- 2 Inlet security group
- 3 Temperature and pressure valve
- 4 Stop valve
- 5 Non-return valve
- 6 Circulation pump
- 9 Drain valve
- 10 Gas cock
- 11 Isolating valve
- 12 Temperature gauge
- 13 Condense drain
- 14 Hot water outlets
- 16 Expansion vessel
- 17 Three way valve
- 18 Water cistern
- 19 Float valve
- 23 Over pressure security group
- 26 Air bleed
- 37 Flowmeter
- 38 Pommodule solar
- S1 T-collector
- S2 T-tank
- S3 T-top tank
- S4 T-return solar

Unvented



- A Cold water supply
- B Hot water outlet
- C Circulation pipe
- D Gas supply
- E Water overflow
- F Coil inlet
- G Coil outlet
- H Expansion pipe

# Electrical diagram SGS 28-60



**COMPONENTS CONTROLLER**

- A Controller
- B Ionisation rod
- C Glow ignitor
- D Gas control
- E Burner earth connection
- F Extra ON-mode switch
- G Continuous pump
- H Program controlled pump
- J Extra error signal
- K Isolating transformer
- L Double-pole mains switch
- M On/Off switch control
- N Display
- O Fan
- P Temperature sensor (T2 - bottom of tank)
- Q Dummy
- R Temperature sensor (T1 - top of tank)
- S Selection resistor
- T Pressure switch
- U Controller solarsystem (BUS-link)
- F1 Fuse
- F3 Fuse

**COMPONENTS SOLAR CONTROLLER**

- AA Controller
- BB Pump solar system (ON / OFF)
- CC Pumps solar system (modulating)
- DD Temperature sensor (S1 - solar collector)
- EE Temperature sensor (S2 - tank)
- FF Q/T-measuring (incl. temperature-sensor S4 - return solar collector)
- GG Controller (BUS-link)
- HH Temperature sensor (S3 - top tank)

F2 Fuse

**CONNECTIONS SOLAR CONTROLLER**

1	⏚	
2	L	Power supply
3	N	
4	-	n.a.
5	-	n.a.
6	-	n.a.
7	⏚	
8	L <sub>1</sub>	Pump solar system (ON / OFF)
9	N	
10	N	
11	L <sub>2</sub>	Pump solar system (modulating)
12	-	
13	⏚	
14	-	n.a.
15	-	n.a.
16	-	n.a.
17	-	n.a.
18	-	n.a.
19	-	n.a.
20	-	n.a.
J3	1	n.a.
	2	n.a.
	3	n.a.
	4	n.a.
J12	1	Power supply 5V
	2	Sensor return solar collector (S4)
	3	Earth
	4	Flow signal
J13	1	n.a.
	2	Sensor solar collector (S1)
	3	n.a.
	4	Sensor solar collector (S1)
J14	1	Sensor top tank (S3)
	2	Sensor tank (S2)
	3	Sensor top tank (S3)
	4	Sensor tank (S2)
J15	1	n.a.
	2	n.a.
J16	1	BUS-link
	2	
J17	1	n.a.
	2	n.a.
	3	n.a.

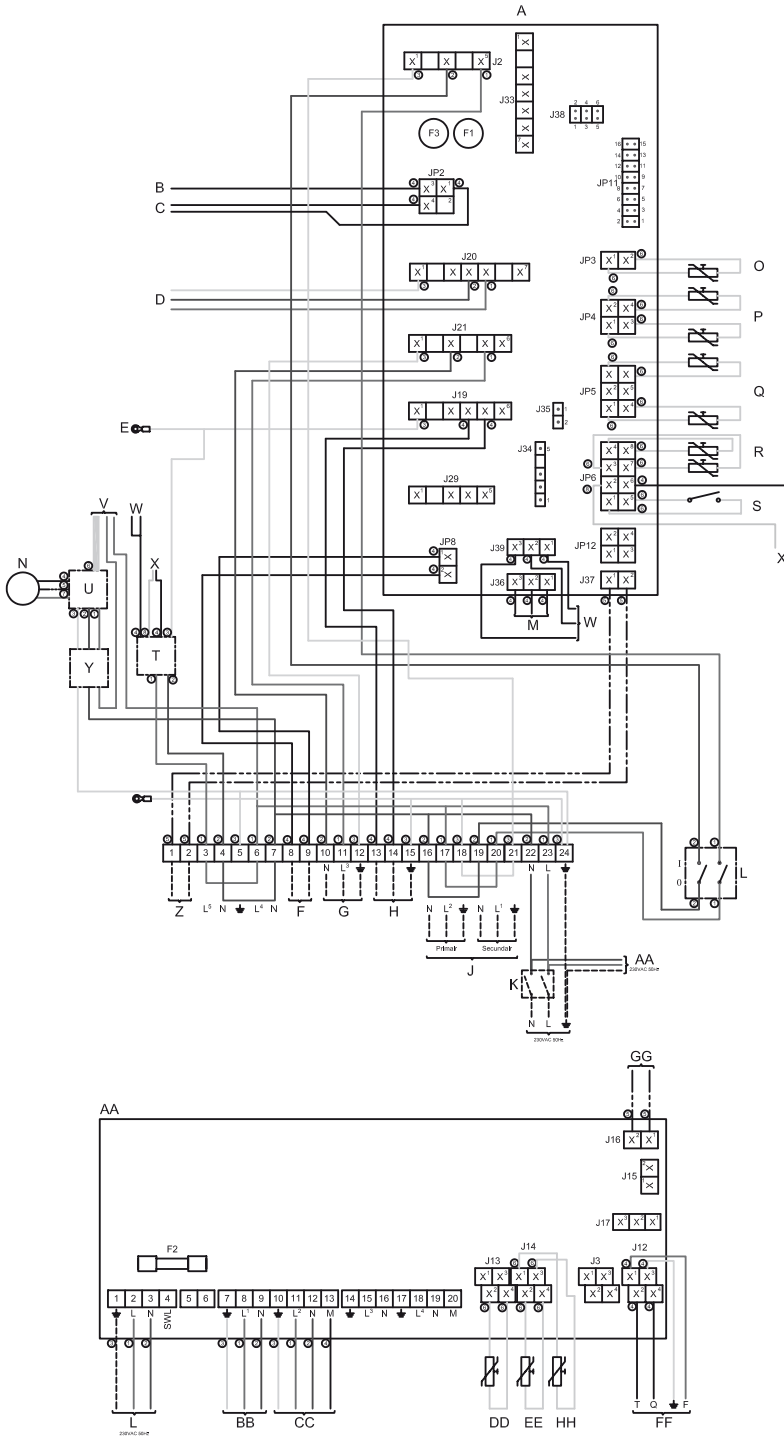
**CONNECTIONS MAIN CONTROLLER**

1	X <sub>5</sub>	BUS-link
2	X <sub>6</sub>	
3	-	n.a.
4	-	n.a.
5	X <sub>3</sub>	External ON / OFF
6	X <sub>4</sub>	
7	⏚	
8	L <sub>5</sub>	Continuous pump
9	N	
10	N	
11	L <sub>4</sub>	Program controlled pump
12	⏚	
13	X <sub>2</sub>	
14	X <sub>1</sub>	Extra error signal
15	⏚	
16	N	Isolating transformer (primary side)
17	L <sub>2</sub>	
18	⏚	
19	N	Isolating transformer (secondary side)
20	L <sub>3</sub>	
21	⏚	
22	⏚	
23	L <sub>1</sub>	Power supply
24	N	

**Colour code cables**

- ① = brown
- ② = blue
- ③ = yellow/green
- ④ = black
- ⑤ = white
- ⑥ = grey/beige

# Electrical diagram SGS 80-100



### COMPONENTS CONTROLLER

- A Control
  - B Ionisation rod
  - C Glow ignitor
  - D Gas control
  - E Burner earth connection
  - F Program controlled pump
  - G Continuous pump
  - H Extra error signal
  - J Isolating transformer
  - K Double-pole mains switch
  - L ON / OFF switch control
  - M Display
  - N Fan
  - O Temperature sensor (T2 - bottom of tank)
  - P Dummy
  - Q Temperature sensor (T1 - top of tank)
  - R Selection resistor
  - S Pressure switch
  - T Potentiostat
  - U Frequency controller
  - V RS-485 interface
  - W Electric anodes
  - X Signaling for electric anodes
  - Y Mains choke and EMC-filter
  - Z Solar control system (BUS-link)
- F1 Fuse  
F3 Fuse

### COMPONENTS SOLAR CONTROLLER

- AA Control
  - BB Pump solar system (ON / OFF)
  - CC Pump solar system (modulating)
  - DD Temperature sensor (S1 - solarcollector)
  - EE Temperature sensor (S2 - tank)
  - FF Q/T-measuring (incl. temperature sensor S4 - return solar collector)
  - GG Control (BUS-link)
  - HH Temperature sensor (S3 - top tank)
- F2 Fuse

### CONNECTIONS SOLAR CONTROLLER

1	⏏	
2	L	Power supply
3	N	
4	-	n.a
5	-	n.a
6	-	n.a
7	⏏	
8	L1	Pump solar system (ON / OFF)
9	N	
10	N	
11	L2	Pump solar system (modulating)
12	-	
13	⏏	
14	-	n.a
15	-	n.a
16	-	n.a
17	-	n.a
18	-	n.a
19	-	n.a
20	-	n.a
		J3
	1	n.a
	2	n.a
	3	n.a
	4	n.a
		J12
	1	Power supply 5V
	2	Sensor return solar collector (S4)
	3	Earth
	4	Flow signal
		J13
	1	n.a
	2	Sensor solar collector (S1)
	3	n.a
	4	Sensor solar collector (S1)
		J14
	1	Sensor top tank (S3)
	2	Sensor tank (S2)
	3	Sensor top tank (S3)
	4	Sensor tank (S2)
		J15
	1	n.a
	2	n.a
		J16
	1	BUS-link
	2	n.a
	3	n.a
		J17
	1	n.a
	2	n.a
	3	n.a

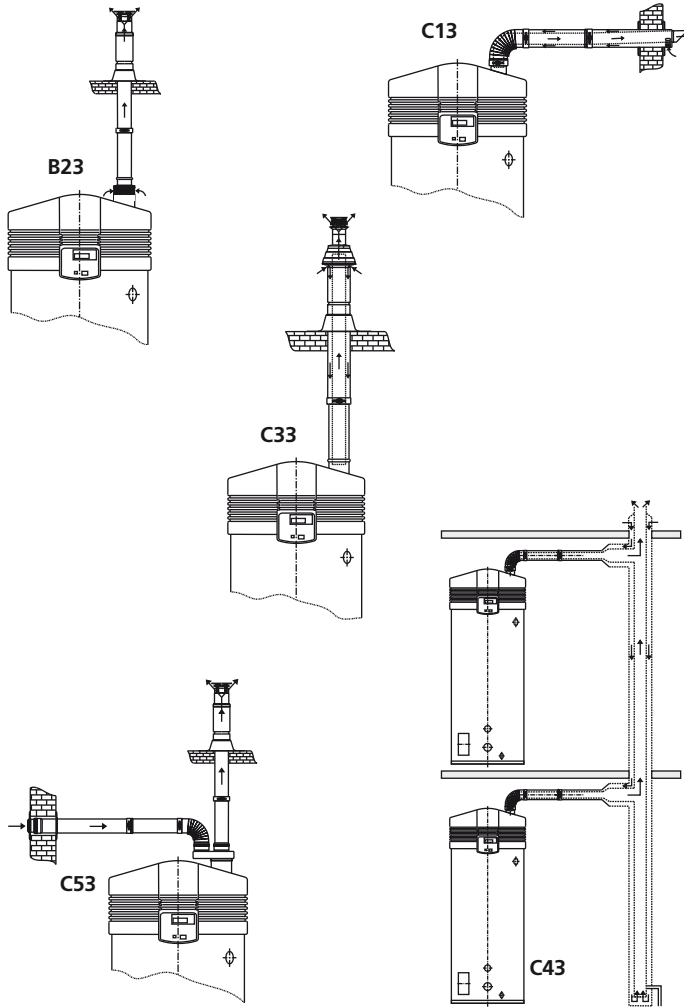
### CONNECTIONS MAIN CONTROLLER

1	X5	BUS-link
2	X6	
3	L5	Potentiostat
4	N	
5	⏏	
6	L4	Frequency controller
7	N	
8	X3	External ON / OFF
9	X4	
10	N	
11	L3	Program controlled pump
12	⏏	
13	X1	
14	X2	Extra error signal
15	⏏	
16	N	Isolating transformer (primary side)
17	L2	
18	⏏	
19	N	Isolating transformer (secondary side)
20	L1	
21	⏏	
22	⏏	
23	L	Power supply
24	N	

### Colour code cables

- ① = brown
- ② = blue
- ③ = yellow/green
- ④ = black
- ⑤ = white
- ⑥ = grey/beige
- ⑦ = red
- ⑧ = green

# Installation options

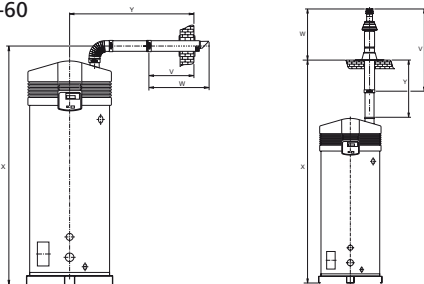


A SGS water heater should be installed according category B23, C13, C33, C43 or C53\*.

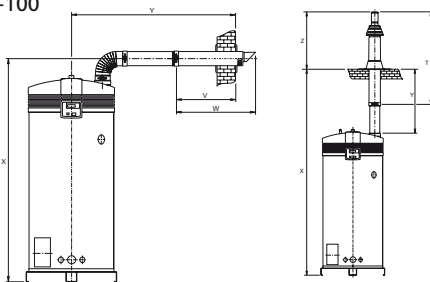
	SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100
<b>Concentric</b>						
Diameter (mm)	80/125	100/150	100/150	100/150	130/200	130/200
Max. length (m)	40	40	40	15	15	15
Max. 45/90° bends	7	7	7	4	3	3
<b>Parallel (standard diameter)</b>						
Diameter (mm)	80	100	100	100	130	130
Max. length (m)	25	80	45	25	115	60
Equivalent/bend 90° (m)	3,9	4,6	4,6	4,6	2,4	2,4
Equivalent/bend 45° (m)	1,1	1,2	1,2	1,2	1,4	1,4
<b>Parallel (larger diameter for more length)</b>						
Diameter (mm)	100	130	130	130	150	150
Max. length (m)	100	100	100	100	100	100
Equivalent/bend 90° (m)	4,6	2,4	2,4	2,4	2,6	2,6
Equivalent/bend 45° (m)	1,2	1,4	1,4	1,4	1,6	1,6
* All SGS are also approved for installations where the unit is supplied without venting materials (C63).						
<b>Concentric flues</b>						
It is <b>not</b> permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.						
<b>Parallel flues</b>						
- The maximum permissible length should be reduced by the equivalent length of each bend. (Note: for a parallel installation this means that 3 changes in direction amount to 6 bends (3 in the supply duct and 3 in the flue)).						
- The maximum length also applies if a parallel installation has different supply and flue duct lengths (B23, C53).						
- Combined flues (C43) shall be fitted with a condensate drain.						
Note: horizontal flue runs must be installed with a fall of at least 5 mm per metre.						

# Minimum space requirements

SGS 28-60



SGS 80-100



	SGS 28 Ø80/125	SGS 30 Ø100/150	SGS 50 Ø100/150	SGS 60 Ø100/150	SGS 80 Ø130/200	SGS 100 Ø130/200
<b>Minimal space for wall duct (mm)</b>						
V	550	550	550	550	640	640
W	725	790	790	790	940	940
X	1630	2170	2170	2170	2230	2230
Y	1460	1480	1480	1480	1620	1620
Y *	1010	1030	1030	1030	1170	1170
<b>Minimal space for roof duct (mm)</b>						
V	1305	1500	1500	1500	1730	1730
W	680	1035	1035	1035	1120	1120
X	3060	3420	3420	3420	3620	3620
X **	2110	2470	2470	2470	2670	2670
Y	1575	1415	1415	1415	1560	1560
Y **	625	465	465	465	610	610
For the parts numbers of components and flue gas ducts, etc. please refer to the "Maintenance and accessories" chapter.						
* Distance without concentric pipe between bend and wall duct.						
** Distance without concentric pipe between appliance and roof duct.						

Data subject to change INT/1108/SGS/02  
Terms and conditions apply, please refer to our website.